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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

SEFCHECK, GREGORY B

ART UNIT

PAPER NUMBER

2616

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08/02/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/050,517	Applicant(s) MANGANINI ET AL.	
	Examiner Gregory B. Sefcheck	Art Unit 2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 June 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 4, 8 and 13-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 4, 8, 13-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

- Applicant's Amendment filed 6/6/2007 is acknowledged.
- Claims 14 and 15 have been amended.
- The previous objection to claims 14 and 15 is withdrawn.
- Claims 2, 3, 5-7, and 9-12 have been previously cancelled.
- Claims 1, 4, 8, and 13-16 are pending.

Claim Rejections - 35 USC § 101

1. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

2. Claims 14 and 15 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claims 14 and 15 to a "computer program product comprising computer program code" and "computer readable medium having a program" do not constitute statutory subject matter such as a process, machine, article of manufacture or composition of matter. In contrast, a claimed computer readable medium or computer program product comprising computer program code recorded with computer-executable instructions is a computer element which defines structural and functional interrelationships between the instructions and the processor/computer to permit the instructions functionality to be realized, and is thus statutory. Please see pages 30 and 53 of the Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 8, and 13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over de Boer et al. (US006616350B1), hereafter Boer, in view of Takeguchi (US006735171B2).

- In regards to Claims 1, 13, and 16,

Boer discloses a method and apparatus (network element) for managing multiple simultaneous impairments in a 4 fiber SONET ring topology through use of one or more protection lines (Abstract; Fig. 1; Col. 13, lines 4-16; meets claim 1,13 – a method and network element for managing multiple requests of span and ring protections telecommunication network with a 4 fiber ring topology protected by a traffic protection mechanism; claim 1,13 – receiving signals arranged as frames of bytes that comprise a first pair of event signaling bytes).

Boer discloses monitoring transmission lines for impairments that indicate loss of data, such as Loss of Signal, Loss of Pointer, Line Alarm and Path Alarm, which are carried in the SONET overhead. Based upon this monitoring, the impairment can be determined as a fiber, node or link failure. K-byte signaling can be used to signal that such an impairment has occurred so that a protection switch, span or ring type, can be

performed (Col. 10-11, lines 19-36).

Boer discloses a first pair of k-bytes for requesting either a ring or span switch (Col. 11, lines 17-37; claim 1,13 - the first pair of event signaling bytes being used for requesting ring protection of at least one type).

Boer discloses performing both a span and ring switch on the basis of a priority (type) scheme of the working lines within a ring (Col. 13, lines 4-17). Boer also discloses that a third k-byte can be used for requesting the switches (Col. 11, lines 37-42). However, Boer does not explicitly disclose a full additional pair of bytes for requesting two different types of span switches at the same time as requesting a ring switch, in which the additional pair of bytes are not yet reserved for other purposes.

Takeguchi discloses an SDH transmission system. Takeguchi discloses increasing the functionality of line switching control by utilizing unused bytes of the overhead (Col. 6-8, lines 1-27; claim 16 - additional pair of bytes are not yet reserved for other purposes). Furthermore, though the disclosure of Boer utilizes examples of span and ring protection switches using only one protection line, Boer does disclose that a plurality of protection lines may service a group of working transmission lines (Col. 3, lines 35-39). Implementation of the method and network element using a plurality of protection lines would enable multiple span protections of different priority working lines to be performed concurrently (claim 1,13 - signals includes at least one additional pair of event signaling bytes being used for requesting span protection of at least two different types at the same time as request for ring protection).

It would have been obvious to one of ordinary skill in the art at the time of the

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invention to utilize a full two pair of signaling bytes for requesting span protection of at least two different types at the same time as requesting ring protection, as shown by Takeguchi and Boer. This would extend the principle of three k-bytes disclosed in Boer to provide the signaling capacity necessary to implement a ring switch at the same time as multiple span switches over a plurality of protection lines.

- In regards to Claim 8,

Boer discloses a method and apparatus for managing multiple simultaneous impairments in a 4 fiber SONET ring topology through use of one or more protection lines that covers all limitations of the parent claims.

Boer discloses a priority scheme in which the priority of working lines are evaluated when a protecting-switching failure occurs such that the protection line(s) are used to service highest priority traffic (Col. 5, lines 27-62; Col. 10-11, lines 29-8; meets claim 8 – network includes at least one path protected by the traffic protection mechanism; claim 8 – processing the first pair and additional pair of bytes and evaluating whether the at least one path can be protected taking into account the processing bytes).

- In regards to Claims 14 and 15,

Boer discloses the protection switching mechanisms of the method shown above to be implemented by software executed by a processor (Col. 8, lines 60-63; meets claim 14,15 – computer product/medium to perform method of claims 1, 4, or 8).

5. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Boer and Takeguchi as applied to claim 1 above, and further in view of Falkenstein et al. (US007016379B2), hereafter Falkenstein.

- In regards to Claim 4,

Boer discloses a method and apparatus for managing multiple simultaneous impairments in a 4 fiber SONET ring topology through use of one or more protection lines that covers all limitations of the parent claims.

Boer does not explicitly disclose a transoceanic optical network.

Falkenstein discloses 4 fiber ring topology protection switching in a transoceanic optical network (Col. 8, line 18; meets claim 4 - telecommunications network is a transoceanic optical network comprising nodes connected through fiber spans having at least four fibers).

It would have been obvious to one of ordinary skill in the art at the time of the invention to implement the protection switching method of Boer on a transoceanic network, as taught by Falkenstein, thereby ensuring high priority data is resilient to faults when communicated across the ocean.

Response to Arguments

6. Applicant's arguments filed 6/6/2007 have been fully considered but they are not persuasive.

- In the Remarks on pg. 4-5 of the Amendment, Applicant reiterates previous arguments from the submission filed 12/11/2006, in which Applicant contends that Takeguchi does not disclose that unused bytes of overhead are utilized to increase functionality of line switching control but, rather, teaches setting information stored in undefined portions of an overhead or predefined byte to enhance reliability in transferring the information. Applicant contends that this is different from providing additional bytes for indicating requests of two different span protections at the same time as a ring protection.
- As in the previous response of the non-final Office Action filed 3/6/2007, the Examiner respectfully disagrees. Takeguchi discloses that the setting information that is to be transferred is setting information for line switching control in the case of a failure (Col. 5, lines 54-64). Further, the setting information is disclosed as transferred in an unused portion of a predefined byte of the section overhead (Col. 6, lines 5-9). Therefore, the correlation of K byte signaling in de Boer and setting information in Takeguchi used in the rejection is proper. Secondly, as shown in the above rejections,

de Boer discloses simultaneously requesting multiple protections, including both a ring protection and a span protection, by utilizing a pair of K bytes as well as an extension third K byte for protection signaling. The disclosure of Takeguchi discussed above is relied upon to show that unused portions of overhead, in addition to the 3 K bytes in de Boer, may be used to request further protections.

Therefore, the *combination* (emphasis added) of de Boer and Takeguchi teaches at least 2 pairs of bytes for signaling multiple, different span protections simultaneously with a ring protection, where the protections made are based upon the priorities (types) assigned to the lines in need of protection.

- In the Remarks on pg. 5-6 of the Amendment, as in the previous submission of 12/11/2006, Applicant contends that neither reference, either alone or in combination, teaches or suggests an additional pair of bytes for requesting span protections of two different types of at least two different spans, with emphasis on the protection of different spans.
- Again, the Examiner respectfully disagrees. As shown above, de Boer discloses an additional K byte for protection signaling while Takeguchi discloses using at least an unused byte for setting

information transfer. Therefore, the combination of de Boer and Takeguchi discloses *at least* (emphasis added) 4 bytes (2 pairs) for protection signaling. The suggestion of using bytes to perform different types of span and ring protections is shown in de Boer, as shown in the above response (Col. 13, lines 4-17), while the suggestion to use *further* additional bytes is presented in both references – in de Boer through the disclosure of the third, extension K byte, and in Takeguchi through disclosure of using unused bytes of the overhead to transfer setting information pertaining to protection switching. Therefore, the motivation presented to combine the applied references both meets and suggests the claimed features of at least 2 pairs of bytes for requesting multiple protections of different spans and rings in various combinations, enabled and limited by the availability of unused overhead, to enhance the robustness and reliability of data transmission. See also MPEP 2144.04, *In re Harza*, 274 F.2d 669, 124 USPQ 378 (CCPA 1960).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregory B. Sefcheck whose telephone number is 571-272-3098. The examiner can normally be reached on Monday-Friday, 8:00am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wing Chan can be reached on 571-272-7493. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Gregory Sefcheck
Patent Examiner
7-31-2007